

GANSKAU, N.K.; POYUROVSKIY, M.Ye.

Transistorized d.c.converter with magnetic stabilization.  
Priborostroenie no.1:13-15 Ja '61. (MIRA 14:1)  
(Electric current converters)

MARGULIS, L.I.; GANSKIY, V.A.; GOBERMAN, M.D., otv.red.; PEVZNER, A.S.,  
zav.red.izd-va; OSENKO, L.M., tekhn.red.

[Uniform time and pay standards for construction, assembly, and  
repair operations in 1960] Edinye normy i rastsenki na stroi-  
tel'nye, montazhnye i remontno-stroitel'nye raboty, 1960 g.  
Moskva, Gos.izd-vo lit-ry po stroit., arkhitekt. i stroit.materia-  
lam. Sbornik 33. [Assembling the equipment for metallurgical  
plants] Montazh metallurgicheskogo oborudovaniia. No.1. [Equipment  
for blast-furnace plants] Oborudovanie domennykh tsekhov. 1960.  
63 p. (MIRA 13:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroi-  
tel'stva. 2. Tsentral'noye normativno-issledovatel'skoye byuro  
Ministerstva stroitel'stva RSFSR (for Margulis, Ganskiy).  
(Wages) (Blast furnaces)

GANSON, P.P.; ZENKEVICH, N.L.; SERGEYEV, I.V.; UDINTSEV, G.B.

Maximum depths of the ocean. Priroda 48 no.6:84-88 Je '59.  
(MIRA 12:5)

1. Institut okeanologii AN SSSR, Moskva.  
(Deep-sea sounding)

BARK, L.S.; GANSON, P.P.; MEYSTER, N.A.; DOBROVOL'SKIY, A.D., prof.,  
otv.red.: KORKINA, A.I., tekhn.red.

[Tables of the speed of sound in sea water] Tablitsy skorosti  
zvuka v morskoi vode. Moskva, Vychislitel'nyi tsentr AN SSSR,  
1961. 180 p. (MIRA 14:6)  
(Sound--Speed)

CANSON, P.P.

Some details of the thermal structure of the surface layer of water  
in the ocean. Trudy Inst.ocean. 45:98-101 '61. (MIRA 15:2)  
(Pacific Ocean--Ocean temperature)

S/213/62/002/001/002/002  
I068/I242

AUTOR: Ganson, P. P.

TITLE: Sea acoustics — a new branch of oceanology

PERIODICAL: Okeanologiya, v. 2, no. 1, 1962, 151-153

TEXT: Sea acoustics, the science of submarine sounds, is a powerful tool in the age of the atomic submarine and underwater missile launching. Proper application of the science depends on very accurate determination of the speed of sound and the acoustic properties of water. These properties should be determined on a regional basis by the integration of all available data and particularly the vertical distribution of salinity and temperature, structure and morphology of the ocean floor, and the distribution of plankton. ✓

Card 1/1

AUTHOR: Ganson, P. P.

50-58-4-11/26

TITLE: On the Computation Formulae of the Propagation Velocity of Sound in Sea Water (0 formulakh dlya rascheta skorosti rasprostraneniya zvuka v morskoy vode)

PERIODICAL: Meteorologiya i Gidrologiya, 1958, Nr 4, pp 30-34 (USSR)

ABSTRACT: The exact knowledge of the sound velocity in sea water is of importance for the solution of practical problems in case of application of hydro-acoustic devices. The velocity is ascertained by 2 ways: 1) Directly measured by apparatus and 2) computed by means of formulae, which express the dependence on temperature, salt content, and hydrostatic pressure. The advantages and disadvantages of these two methods are discussed. Also in case of presence of an apparatus the formula must be used for the computation:

$$c = \sqrt{\frac{\gamma}{\rho\beta}} \quad (1),$$
 whereby  $\gamma$  denotes the relation of the specific heat capacities of the sea water,  $\rho$  - the average density, and  $\beta$  - the coefficient of the isothermal compressibility of the sea water. According to this formula tables (references 1,2,5,6,8,10) are computed. Out of the

Card 1/3

On the Computation Formulae of the Propagation Velocity of Sound in Sea Water 50-58-4.11/26

latest works on direct measurements (references 4, 11) can be seen that the velocities, computed on the basis of tables and nomograms, which base upon a theoretical formula, are in the average by 3-4 m/sec. lower than the effective values. The coefficient  $\beta$  was taken too high. There are some more empirical formulae (references 4, 7, 9, 12). In the following the various formulae are compared with each other. Though the results of the latter differ from each other, the question of the choice of a formula, which gives the most accurate results, cannot be solved. The author used 80 directly measured velocities as specimens (Etalon), for which simultaneous measurements of temperature and salt content were present. Of this data curves of the measured and of the after various formulae computed sound velocity were constructed (figure 1). From the comparison the accuracy of each formula could be estimated. From this comparison the author deduces the following conclusions: 1) To be able to compute the sound velocity by the theoretical formula (1) the coefficient  $\beta$  must be determined by means of laboratory experiments. 2) All here discussed empirical formulae do not guarantee the accuracy which at present is required.

Card 2/3



On the Computation Formulae of the Propagation Velocity of Sound in Sea Water 50-58-4-11/26

3) For the determination of the sound velocity from the the temperature and the salt content of sea water the nomogram or the tables by Del'Grosso (reference 4) have to be applied. 4) In his formula the coefficients in the 2nd and 3rd term are to be modified (being given in this new form). 5) Because of the troublesomeness of the computation by formulae a special computation device should be constructed.

There are 3 figures, 1 table, and 12 references, 2 of which are Soviet.

AVAILABLE: Library of Congress

1. Underwater sound - Propagation Velocity
2. Underwater sound -
3. Mathematics - Applications

Card 3/3

GANSTER, F.I.

Prevent accidents. Avtomobilist 1:82-86 '61.  
(Drinking and traffic accidents)

(MIRA 15:1)

GANSZER W.

ABST. JOUR. : REKHAIE., No. 20 1959, No. 72499

AUTHOR : Bankowski, C.; Ganszer, W.

ISSY. :

TITLE : Content of Tannins in Polish Species of  
Lonicera L.

ORIG. PUB. : Acta polon. pharmac.. 1958, 15, No 6,  
481-483

ABSTRACT : A description of locations where the plants  
occur; of conditions of their preliminary treatment;  
results of analyses of specimens. It is proposed to utilize  
the plants as pharmaceutical raw material. -- D. Yakesh.

CARD:

46

GANSZER, W., SZTAJEROWA, M.

Severe acute uremia with convulsions following allergy to sulfonamides. Polski tygod, lek. 5:8, 20 Feb. 50. p. 284-90

1. Of the Surgical Department of the Hospital imienia Przemyslaw II. in Kalisz. (Director of the Hospital--Karol Piotrowski, M. D.; Head of the Surgical Department--Lodz. Ganszer, M. D.; Head of Children's Department--L. Fiszler, M. D.).

CIML 19, 5, Nov., 1950

GANSZER, W.

Observations on postoperative syndrome of pallor and hyperthermia  
in children. Polski prsegl. chir. 24 no. 1:1-7 Jan-Feb 1952.

(CJML 23:3)

1. Of the Surgical Department (Head--Wl. Ganszer, M. D.) of Hospital  
imienia Przemyslaw II (Director -- Karol Piotrowski, M. D.) in  
Kalisz.

GANSZER, W.; GLADYSZ, B.

Observations on application of contrast media in cases of so-called hemorrhagic cysts in the supracravicular region. Polski przezl. radiol. 17 no.1:37-46 Jan-Mar 1953. (CJML 24:5)

1. Of the Hospital imienia Przemyslaw II in Kalisz.

GANSZER, Wlodzimierz

Treatment of spinal fractures with neurological lesions. Chir. narz.  
ruchu 22 no.4:419-421 1957.

1. Z Oddzialu chirurgicznego Szpitala Miejskiego w Kaliszu. Ordynator:  
dr W. Ganszer. Kalisz, Szpital Miejski.

(SPINE, fractures

causing neurol. disord., ther., conservative & surg. (Pol))

(CENTRAL NERVOUS SYSTEM, dis.

caused by spinal fract., ther., conservative & surg. (Pol))

GANSZER, W.

POLAND/Morphology of Man and Animals (Normal and Pathologic).  
Digestive System.

S-2

Abs Jour : Ref Zhur - Biol., No 4, 1958, 17024

Author : Ganszer, W.

Inst :

Title : A Case of Rectum Duplex.

Orig Pub : Polski przegl, chirurg., 1957, 29, No 5, 495-498

Abstract : No abstract.

Card 1/1



*Ganszer, W.*  
GANSZER, Włodzimierz

Extensive diverticulosis of the jejunum complicated by primary cancer of one of diverticula. Polski prześl. chir. 29 no.7:705-707 July 57.

1. Z oddziału Chirurgicznego Szpitala Miejskiego w Kaliszu. Ordynator: dr. W. Ganszer.

(JEJUNUM, diverticula,

extensive with primary cancer of one diverticulum (Pol))

POLAND

GANSZES, Wladzimierz, Dr. med., Ordynator of the Surgical Division (Oddzial Chirurgiczny) of the Municipal Hospital (Szpital Miejski) in Kalisz (Director: Dr. med. L. KOWACKI)

"Post-traumatic Liver Cyst. Case Report."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 2, 7 Jan 63, pp 52-54.

Abstract: [Author's English summary modified] Symptoms, diagnostic procedure, and successful treatment of a rare complication connected with an injury to the liver following trauma is described. There are two (2) English references.

1/1

POLAND

GANSZER, Włodzimierz, Dr. med., "Ordynator" of the First Surgical Division (Oddział Chirurgiczny I), Municipal Hospital (Szpital Miejski) in Kalisz.

"Arterious-Venous Fistula on the Face. Case Report."

Warsaw, Polski Tygodnik Lekarski, Vol 18, No 3, 14 Jan 63, pp 109-110

Abstract: [Author's English summary] A case of acquired arterious-venous fistula localized on the head (frontal vessels) is reported. Surgical treatment (excision) was successful. There are 7 references, of which 6 are Polish and one English.

1/1

GANSZER, Włodzimierz , dr.

Fracture of the carpal scaphoid bone. Chir. narząd. ruchu ortop.  
Pol. 28 no.7:991-994 '63

1. Z Oddziału Chirurgicznego Szpitala Miejskiego w Kaliszu  
(Ordynator: dr. W. Ganszer).

GANSZKY, Karoly

"Chemical processes in high-voltage electric discharges and their industrial applications" by Theodor Rummel. Reviewed by Karoly Ganszky. Elektrotechnika 51 no.7/9:427-428 '58.

GANSZKY, Karoly, okleveles villamosmérnök, adjunktus

External characteristic curves of six-phase rectifiers during the passive operation of the suction-choke coil. Elektrotechnika 57 no.7:269-279 J1 '64.

1. Chief, Division of Industrial Electronics, Electric Power Industry Research Institute, Budapest, and Chair of Automation, Budapest Technical University, Budapest, V., Jozsef Attila u.24.

GANSZKY, Karoly, okleveles villamosmérnök, adjunktus

Current conducting conditions of the six-phase rectifier circuit with interphase transformer during the active operation of the transformer. Elektrotechnika 57 no.11/12: 537-547 N-D '64.

1. Scientific Division Chief, Research Institute of Electric Industry, and Chair of Automation, Budapest Technical University.

GANTAMIROV, Yu.S. (Groznyy)

Arrangement of pumps at the pumping station of a circulatory water-supply system. Vod. i san. tekhn. no.1:15 Ja '61. (MIRA 14:9)  
(Pumping stations)



GANTAMIROV, Yu.S., inzh. (g. Groznyy)

From the experience of designing the return water-supply systems  
of process installations of petroleum refineries. Vod. i san.  
tekhn. no.10:21-22 0 '65. (MIRA 18:11)

GANTAR, J.

The Arnes Hollow. p. 149; Slovenska akademija znanosti in umetnosti.  
Institut za raziskovanje krasa. POROCILA. ACTA CARSOLOGICA. Ljubljana;  
Vol. 1, 1955

SOURCE: East European Accessions List (EEAL), Library of Congress,  
Vol. 5, No. 12, December 1956.

CZECHOSLOVAKIA

GANTCHEV, G.; KOITCHEVA, V.; [Affiliation not given].

"Functional State and Regulation Mechanisms of the Motor Analyzer in Postural Activity of Man."

Prague, Activitas Nervosa Superior, Vol 8, No 2, Jun 66, pp 160-165

Abstract [Authors' English summary modified]: Hand tremor components differing in frequency and amplitude are described. Frequency of medium amplitude oscillations was 1.2 to 2.2 cycles, at low oscillations 2.5 cycles. Visual feedback in the maintaining of a definite position has the character of negative feed-back as a stabilizing process. Low frequency components of the tremor are of supraspinal origin. Effect of the tremorogram of the functional changes in the peripheral muscular reception shows that high-frequency components are associated with the spinal regulation mechanism of postural activity. In the state of fatigue a delay in the nerve impulses occurs probably in the synapses. Postural activity was studied in relatively simple interrelations of the center and the periphery because, as proved by electromyography, the extensors play the main part in maintaining posture. 6 Figures, 1 Table, 4 Western, 5 Russian, 2 East German references. Article 1/1 is in French.

frequency: 1.2-2.2 c/sec); and 3) very weak, high frequency oscillations (~2.4 c/sec). An extended discussion searches for the mechanism(s) explaining the observed oscillations. There are 2 Bulgarian, 1 Soviet, and 2 Western references. (Manuscript received, 17 Jan 66.)

APPROVED FOR RELEASE: 09/17/2001

CIA-RDP86-00513R000614230001-4"

CHITMAN, W.: CHITMAN, W.: CHITMAN, W.

Newer data on the chemistry of starch fraction. III. Retrogradation of  
amylase. p. 465.

KOZLITSKY. Magyar Tudományos Akademia. Kémiatudományi Osztály.  
Budapest, Hungary. Vol. 11, no. 4, 1958.

Monthly list of East European Accession (EEAI) L3, Vol. ~~XXXXXXXXXXXXXXX~~  
9, no. 2, Feb. 1960

Uncl.

Country : Hungary D  
 Category : Cosmochemistry. Geochemistry. Hydrochemistry.  
 Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 18957  
 Author : Ganti, T.  
 Institut. :                       
 Title : Pisolites and Pisolitelike Formations.

Orig Pub. : Acta mineral.-petrogr. Szeged., 1957, 10,  
 15-18

Abstract : Four instances of formation of pisolites are considered: 1) uniform grains of sand covered with water, on rolling in a moving current, are deposited in a form similar to peas; 2) well developed crystals of calcite become coated with a layer of calcite, by crystallization; 3) formation of pisolites takes place in cold water, when the previously separated particles become coated, on condensation, with a thin, stable layer of calcite; 4) aragonite, which separates out from the water during a slow flow of the stream, is converted to the stabler calcite of greater specific gravity. In the course thereof the coating layer of calcite becomes a blistered pisolite-like formation which  
 Card: 1/2

Country : Hungary D  
Category : Cosmochemistry. Geochemistry. Hydrochemistry.  
Abs. Jour. : Ref Zhur-Khimiya, No 6, 1959 18957  
Author :  
Institut. :  
Title :  
  
Orig. Pub. :  
  
Abstract : is called "rose stone". -- E. Chepizhnaya.

Card: 2/2

D-7

GANTI, T

HUNGARY/Cosmochemistry, Geochemistry, Hydrochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 12, 1958, 39261

Author : Ganti, T

Inst : -

Title : Chemical Conditions for the Formation of Cavities.

Orig Pub : Hidrol. Kozlony, 1957, 37, No 3, 285-288

Abstract : The formation of cavities in limestones cannot be completely explained by the theory of dissolving and water erosion. For, otherwise, they should be also present in dolomites and this is not often the case. However, it is noted that the ratio of calcium to magnesium, which for the common waters is equal to one to one, is sharply changed to 100 to one for the cavities waters. This cannot be explained only by the theory of the secondary solution according to which only calcium carbonate is precipitated from the cavities waters, and the magnesium remains in solution. By saturating and

Card 1/2

HUNGARY/Cosmochemistry, Geochemistry, Hydrochemistry.

D.

Abs Jour : Ref Zhur - Khimiya, No 12, 1958, 39261

supersaturating those waters, calcium carbonate can be precipitated, and the limestone dissolved simultaneously. The volume of the dissolved rocks, calculated on the magnesium content in water is considerably larger than that calculated on the carbonate content. Thus, the effect of the secondary dissolving is considerably higher than that of the primary one. The cavities might be formed only when a secondary dissolving is possible. In dolomites, the dissolving does not occur due to particular conditions of crystallization.

Card 2/2



GANTI, Tibor

The karstic region at Naszaly. Hidrologiai Kozlony 37 no.4:  
380-384 '57.

HUNGARY/Physics of Solid Bodies - Structural Crystallography

E-4

Abstr Jour : Ref Zhur - Fizika, No 4, 1959, No 5619

Author : Ganti Tibor

Inst : -

Title : Plastic Capillaries for X-ray Diffraction Investigations

Orig Pub : Magyar fiz. folyoirat, 1958, 6, No 1, 43-46

Abstract : Description of the application of polyvinyl acetate capillaries for powdered specimens (diameter of the capillary is 0.28 mm, thickness of the wall is 0.02 mm) in the taking of Debyeograms.

Card : 1/1

2 7  
X-ray diffraction of water-alcohol mixtures. Ganti  
Tibor. *Magyar Fiz. Folyóirat* 7, 10-38 (1959). Water takes  
part with unchanged structure up to an EtOH concn. of  
80%. Above that the water structure disappears. Water  
is consumed completely for hydration, probably one mol.  
water for 2 alc. with a H bond between water and alc. This  
assocn. structure is stable at 0°. B. Rona

aat  
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3  
JH

GANTY, Tibor

Stereochemical structure of proteins. *Magy kem lap* 15 no.4:162-167 Ap '60.

1. Erjedesipari Vallalat.

GANTI, Tibor; NOVAK, Ervin

General paper chromatographic developing process. Magyar  
folyoir 68 no.7:293-296 J1 '62.

1. Budapesti Elészto gyar (for Ganti). 2. Orszagos Kozegeszsegugyi  
Intezet, Budapest (for Novak).

GANTI, Tibor; J. NAGY, Eva

The effect of x-ray and ultraviolet irradiation on the germination of yeast cells treated in latent phase. Magy. radiol. 15 no.4: 239-246 Ag '63.

1. A MTA Orvos-Radiologiai Kutatocsoportjanak (vezeto: Zsebck Zoltan dr.) kozlemenye.

(ULTRAVIOLET RAYS) (SACCHAROMYCES)  
(RADIATION EFFECTS)

GANTI, Tibor

Viruses and bacteriophages and their role in the food industry.  
Elelm ipar 17 no.12:377-382 D '63.

1. Budapesti Elesztogyar.

FODOR, Jozsef; GANTI, Tibor

Reaction kinetic investigation of the decomposition of diphosphopiridine-nucleotide. Magyar folyoir 69 no.2:63-66 F '63.

1. Budapesti Elesztogyar, Budapesti.



L 18782-63

EWT(1)/EWT(m)/BDS/ES(j)

AMD/ASD/AFFTC AR/K

ACCESSION NR: AP3005989

H/0021/63/000/004/0239/0246

AUTHOR: Ganti, Tibor; Nagy, Eva J.

TITLE: Effect of X- and ultraviolet radiation on the gemmation of yeast cells treated in the latent phase

SOURCE: Magyar radiologia, no. 4, 1963, 239-246

TOPIC TAGS: gemmation, yeast cell, Saccharomyces cerevisiae, synchronism, lag phase, ultraviolet irradiation, X-irradiation, cellular radiation resistance

ABSTRACT: The authors investigated the changes brought about in the first gemmation of Saccharomyces cerevisiae by UV- and X-irradiation. It was found that UV decreases the degree of synchronism and the number of cells capable of gemmation; however, when the irradiation is carried out during the late part of the "lag" phase, this inhibition is not yet observable at the beginning of gemmation. The cause of this phenomenon may be the increased resistance of the cells to radiation immediately prior to gemmation, or that the UV effect requires a certain length of time to develop. In the case of X-irradiation gemmation set in about 10 minutes later than in the case of unirradiated cells when

Card 1/2

L 18782-63

ACCESSION NR: AP3005989

the irradiation was carried out during the early period of the "lag" phase; when the irradiation was effected immediately prior to the start of germination, the delaying effect was observable only after a certain time. Orig. art. has: 8 figures.

ASSOCIATION: MTA orvos-radiologiai kutatocsoport (MTA Medical-Radiological Research Group)

SUBMITTED: 00

DATE ACQ: 27Aug63

ENCL: 00

SUB CODE: AM

NO REF SOV: 000

OTHER: 016

Card 2/2

ACCESSION NR: AP4032719

H/0021/64/000/002/0110/0117

AUTHOR: Ganti, Tibor (Doctor)

TITLE: Use of synchronous cell-cultures in radiological examinations

SOURCE: Magyar radiologia, no. 2, 1964, 110-117

TOPIC TAGS: radiology, radiation sensitivity, cell irradiation, cell culture, synchronous culture, cell multiplication, mitosis, morphological analysis, cell morphology, biochemical analysis, cell chemistry

ABSTRACT: Cell-cultures in which the majority of the cells at any moment is in the same phase of the reproductive cycle (synchronous cultures), offer a possibility of examining the specific processes of cell-multiplication and their sensitivity to radiation. A great number of physical and chemical methods has been worked out for the synchronization of cell-cultures. The effect of the radiation on the mitosis and the radiation sensitivity in its various stages may be examined in synchronous cultures by means of morphological and biochemical methods. Orig. art. has: 2 figures.

Cord 1/2

ACCESSION NR: AP4032719

ASSOCIATION: none

SUBMITTED 00

DATE ACQ: 07May64

ENCL: 00

SUB CODE: LS

NO REF SOV: 000

OTHER: 065

Card 2/2

GANTI, T.

Fermentation by synchronously dividing yeast cells in nitrogen-poor medium. Acta microbiol. acad. sci. Hung. 11 no.2:147-153 '64.

1. Yeast Factory, Budapest.

1. I. J. P. J. J. J.

Studies on the kinetics of NAD-decomposition. Acta physiol.  
acad. sci. Hung. 26 no.3:199-205 '61

1. Yeast Factor , Budapest.

L 43013-66

ACC NR: AT6031821

SOURCE CODE: HU/2505/65/026/003/0199/0205

AUTHOR: Ganti, Tibor; Fodor, Jozsef--Fodor, Y.

ORG: Yeast Factory, Budapest; I. Surgical Clinic, Medical University of Budapest, Budapest (Budapesti Orvostudományi Egyetem, I. Sebészeti Klinika)

TITLE: Studies on the kinetics of NAD decomposition

SOURCE: Academia scientiarum hungaricae. Acta physiologica, v. 26, no. 3, 1965, 199-205

TOPIC TAGS: yeast, chemical kinetics, aqueous solution, activation energy, plant chemistry

ABSTRACT: An attempt has been made to establish the optimal conditions of nicotine amide adenine dinucleotide (NAD) extraction from yeast, taking into account the kinetics of extraction and the decomposition of the compound. The results obtained supported the findings of LOWRY et al. (1961), concerning the rate of decomposition of NAD. The Arrhenius diagram, plotted on the basis of computed k values (decomposition rate constant of NAD) is a straight line. The temperature gradient, activation energy and frequency factor calculated from the measured data were within the expected range. The decomposition rate constant of NAD in an aqueous solution showed a deviation from the rate in the extracted yeast. The characteristic constants were: temperature gradient  $2.5/10^{\circ}\text{C}$ ; activation energy 26.98 kcal/mole; frequency factor  $0.59 \times 10^{16}$ ; optimal temperature  $80^{\circ}\text{C}$ ; period of extraction 5 minutes. Orig. art. has: 3 figures, 3 tables and 3 formulas. [Orig. art. in Eng.] [JPRS]

SUB CODE: 06, 07 / SUBM DATE: 18May63 / OTH REF: 008

Card 1/1 MLP

019 0369

| LIST AND END ORDERS                                    |  | PROCESSES AND PROPERTIES INDEX  |  |
|--|--|---|--|
| <p><i>GENTIMUROV I.I.</i></p> <p>12</p>                |  | <p>The solonchaks and its cultivation in the Transbaikalian region. I. I. Gentimurov. <i>Fedology</i> (U. S. S. R.) 30, 100-101 (1985).--Chem. analyses of a no. of solonchaks, solonchak and solonchak-solonchak soils are presented showing that on the true solonchaks addition of gypsum were very effective in increasing permeability and decreasing dispersion and moisture-binding capacity. <math>\text{CaO} + \text{S}</math> and S alone were also effective in the same direction as gypsum.</p> <p>J. S. Joffe</p> |  |
| <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p> |  | <p>6-2-10-1, 10-10-1</p>  |  |



| METALLURGICAL LITERATURE CLASSIFICATION   |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |
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| MATERIALS INDEX   |  |  |  |  |  |  |  |  |  |  |  |  | PROCESSES AND PROPERTIES INDEX |  |  |  |  |  |  |  |  |  |  |  |  |
| <p>—Oxidation-reduction status and the principal characteristics of the soil. I. I. Gantimurov, Z. P. Antonovskaya, D. G. Rudnik, 45, 46, 47 (1960). The results of experiments with composts of soil and sewage sludge are discussed, and phenomena of sewage sick and waterlogged soils explained on the basis of oxidation-reduction processes taking place therein. An electrometric method for determining oxidation-reduction status is described. Soil equiv. to about 10 g. dry is rubbed up with 10-500 mg. quinhydrone and 0.8 g. Mg biphthalate for buffer. A Pt electrode about 1 cm. square is buried in the mass, and after 10 mins. the potential vs. a standard half-cell is detd. in the usual manner. The difference between the e. m. f. in the soil-quinhydrone-buffer mixt. and that in a quinhydrone-buffer mixt. is a measure of the oxidizing or reducing power of the soil, and is expressed as mv. + or -. It is concluded that the</p> |  |  |  |  |  |  |  |  |  |  |  |  |                                |  |  |  |  |  |  |  |  |  |  |  |  |
| <p>15</p>   |  |  |  |  |  |  |  |  |  |  |  |  | <p>(over)</p>                  |  |  |  |  |  |  |  |  |  |  |  |  |

moisture content and permeability to air det. the nature of the biol. processes which take place in soil with large amts. of decaying org. matter. The waterlogging or gel-forming processes in sewage sprinkling or filtration fields are characterized:  $pH$  is raised to 7 or more; the value of  $E_h$  is decreased and also the ability to change e. m. f. in the quinhydrone-buffer treatment described; there is a mobilization and leaching out of Fe and great changes in the inorg. colloids;  $NH_4$  becomes an important exchangeable base. It is stated that  $E_h$ , the electrode potential, and  $r_h$ , the index of oxidation-reduction status evald. therefrom, are detd. by the method of Remesov (cf. C. A. 28, 28219); the procedure is described in detail, but the necessary calens. are not explained. Diminished values for  $E_h$  and  $r_h$  indicate that conditions are less favorable for crop growth. Thirty-one references. C. J. S.

| STANDARDIZATION  |  |  |  |  |  |  |  |  |  | PROCESSING AND PROPERTY INDEX  |  |  |  |  |  |  |  |  |  |
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| STANDARDIZATION  |  |  |  |  |  |  |  |  |  | PROCESSING AND PROPERTY INDEX  |  |  |  |  |  |  |  |  |  |
| <p>1. The method for the determination of ferrous and ferric iron in soils irrigated with rain water. I. I. Gantimurov. <i>J. Applied Chem. (U. S. S. R.)</i> 16, 1504-1513 (in German) 1513 (1937).—Ext. of soil with 1.0 N H<sub>2</sub>SO<sub>4</sub> did not reduce ferric to ferrous ion. The acid ext. can be titrated for ferric and ferrous ions by the Knecht method or iodometrically. Twelve references. A. A. Podgorny</p> |  |  |  |  |  |  |  |  |  | <p>1. The method for the determination of ferrous and ferric iron in soils irrigated with rain water. I. I. Gantimurov. <i>J. Applied Chem. (U. S. S. R.)</i> 16, 1504-1513 (in German) 1513 (1937).—Ext. of soil with 1.0 N H<sub>2</sub>SO<sub>4</sub> did not reduce ferric to ferrous ion. The acid ext. can be titrated for ferric and ferrous ions by the Knecht method or iodometrically. Twelve references. A. A. Podgorny</p> |  |  |  |  |  |  |  |  |  |
| <p>ASD-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>   |  |  |  |  |  |  |  |  |  | <p>STANDARDIZATION</p>   |  |  |  |  |  |  |  |  |  |
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| <p>BC</p> <p>B-3-1</p> <p>1. <b>CONTENTS</b></p> <p>2. <b>PROCEDURES AND PROPERTIES INDEX</b></p> <p>3. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>4. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>5. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>6. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>7. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>8. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>9. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>10. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>11. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>12. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>13. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>14. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>15. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>16. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>17. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>18. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>19. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> <p>20. <b>ABB-SLA METALLURGICAL LITERATURE CLASSIFICATION</b></p> |  |  |  |  |  |  |  |  |  |                                 |  |  |  |  |  |  |  |  |  |

**Determination of ability of soils to change the potential of the quinone-hydroquinone system.** L. L. Gantimurov, *J. Applied Chem. (U. S. S. R.)* 12, 415 (20th French, 420) (1939).—The samples of soil (the moisture content not less than 30%) were mixed with buffer solutions of pH 4.2 (Mg biphthalate and phthalic acid), 5.2 (K biphthalate and NaOH), and 6.4 (borax,  $H_2Hb$  and NaCl). Each series of samples (pH 4.2, 5.2 and 6.4) was mixed with hydroquinone, the amt. of which increased in each series from 0 to 700 mg. per 15 g. of soil. Potentials are tabulated.

A. A. Podgorny

**A. A. Podgornyy**

ASM - S L A METALLURGICAL LITERATURE CLASSIFICATION

CA 15

K. K. Gedroiz and the science of the soil. I. I. Gantli: ...  
 murav. *Pedology* (U.S.S.R.) 1947, 207-12; *Chem.*  
*Zentr.* 1947, I, 709; cf. preceding abstr. M. G. Moore

ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION

GANTIMUROV, I. I.

"Research on the Problems of Sanitary Soil Science." Sub 12 Jan 51,  
Moscow Order of Lenin State U imeni M. V. Lomonosov.

Dissertations presented for science and engineering degrees in  
Moscow during 1951.

SO: Sum. No. 480, 9 May 55

CA

15

**Electrodialysis of soils as an oxidation-reduction process.**  
 I. I. Gantimurov (Agr. Inst., Omsk) *Kolloid Zh.* 13, 84-8 (1951).--Electrodialysis of soils does not consist in the removal of ions only; the oxidation-reduction potential  $E$  also changes. Thus,  $E$  of a soil having pH 7.3 and elec. cond. of an ext. of less than  $0.008 \text{ ohm}^{-1} \text{ cm}^{-1}$  was lowered from +0.35 to -0.30 v. near the cathodic membrane after 4 hrs. of electrodialysis; later  $E$  rose to +0.30 v. The potential near the anodic membrane was but little changed by electrodialysis. The mud of a salt lake gave an ext. of pH 8.2 and elec. cond.  $0.08 \text{ ohm}^{-1} \text{ cm}^{-1}$ ; its  $E$  was -0.5 v. and after 33 hrs. of electrodialysis rose to 0.45 v. near the anode and 0.0 v. near the cathode; the pH became 4.3 at the anode and 10.2 at the cathode. The soil near the cathodic membrane is visibly different from that near the anodic. Apparently, these two layers differ in the degree of oxidation of their org. substances, Fe and Mn, and in some other properties.  
 J. J. Bikerman



GANTIMUROV, I.I. (Omsk)

The solonchik and bog processes in the watershed of the river Om.  
Pochvovedenie '52, 1007-11. [No. 11] (MLRA 5:12)  
(CA 47 no.13:6590 '53)

COUNTRY : USSR  
CATEGORY : Soil Science. Tillage. Improvement. Erosion. J  
LIT. JOUR. : RZhBiol., No. 3 1959, No. 10727  
AUTHOR : Gantimurov, I. I., Koshkin, N. A.  
INST. : Ubinskaya Experiment and Soil Improvement Station  
TITLE : Measures for the Reclamation and Improvement of  
Low-Fertility Lands in the Regions of Baraba.  
ORIG. PUB. : Izv. nauchno-issled. i opyt. melior. st., 1957, No. 2,  
5-12  
ABSTRACT : No abstract.

CARD: 1/1

49

USSR / Soil Science. Cultivation. Melioration, Erosion. J

Abs Jour: Ref Zhur-Biol., No 21, 1958, 95775.

Author : Gantimurov, I. I.

Inst : Ubinskoye Experiment Melioration Station.

Title : Results of an Experiment with Methods of Primary Cultivation of Marshes.

Orig Pub: Byul. nauchno-issled. i opyt. rabot Ubinsk. opyt. melior. st., 1957, No 2, 30-41.

Abstract: Results are described of experiments conducted on a lowland sedge-reed weakly-saline marsh in the Ubinskoye Experimental-Improvement Station (Baraba) in 1955-1956. Primary cultivation was conducted at the end of the summer in 1955 without allowing the turned-up virgin soil to lie fallow. Various variants of cultivation were used (cutting, deep plowing in different combina-

Card 1/2

USSR / Soil Science. Cultivation. Melioration, Erosion. J

Abs Jour: Ref Zhur-Biol., No 21, 1958, 95775.

Abstract: tions). In the spring of the following year, the cultivated plots were rolled. During sowing of oats, 2 c per 1 ha of  $P_c$  and 1 c per 1 ha of  $N_{aa}$  were applied. Data are cited of phenological observations for the development of the plants and harvest capacity of some soil-agrochemical indicators. The highest harvest with fertilizers and without fertilizers was obtained by plowing with a shrub-marsh plow plus disking plus cutting. -- F. N. Sofiyeva.

Card 2/2

USSR/Soil Science - Genesis and Geography of Soils.

J

Abs Jour : Ref Zhur Biol., No 22, 1958, 99989

Author : Gantimurov, I.I.

Inst : Novosibirsk Agricultural Institute

Title : Soil Conditions in the Basic Wood Types of the Former  
"Dorovoye" National Forest Kazakh SSR

Orig Pub : Tr. Novosib. s.-kh. in-t, 1957, 12, 92 pages, ill.

Abstract : Under the pine trees of the "Dorovoye" National Forest  
soils of the podzol type are being formed on granites,  
which are characterized by a coarse mechanical structure  
and by a comparatively small depth of the soil profile.  
The soil morphology and peculiarities of its distribution  
are examined in detail. A study of the soils' chemical  
properties indicated that the free Al predominates  
over the exchangeable H ion. The exchangeable

Card 1/2

USSR/Soil Science - Genesis and Geography of Soils.

J

Abs Jour : Ref Zhur Biol., No 22, 1958, 99989

acidity of the lower horizons is caused only by the free  
Al and appears to be a characteristic of the subsoils  
conditioned by the weathering processes of soil-forma-  
tion rocks - granite, quartz and mica. The character of  
forest-cultivating conditions and the special features  
of the soils' water regime are presented. -- P.V.  
Shramko

Card 2/2

- 20 -

GANTIMUROV, I.I.

Soils conditions of Omsk and Novosibirak in relation to the  
landscape gardening. Trudy TSSBS no.3:51-56 '60. (MIRA 15:3)  
(Omsk--Landscape gardening)  
(Novosibirsk--Landscape gardening)

GANTIMUROV, I.I.; POGODAYEVA, L.S.

Upland and crustal Solonetz soils in the districts of Baraba  
and methods for their reclamation. Trudy Biol. inst. Sib. otd.  
AN SSSR no. 242-246 '62 (MIRA 17:8)



GANTIMUROV, I.I.; BASHIROVA, F.N.; TARASOVA, H.V., red.

[Scientific bases for studying soil conditions in cities] Nauchnye osnovy izucheniia pochvennykh uslovii v gorodakh. Novosibirsk, Red.-izd. otdel Sibirskogo otd-niia AN SSSR, 1964. 135 p. (MIRA 18:1)

GANTIMUROV, P.G., inzh.; VISHNEVSKIY, N.I.; RYSIN, V.I., inzh.;  
BANDIN, M.M.

Exchange of practices by the enterprises of economic councils.  
Torf. prom. 39 no.5:29-33 '62. (MIRA 16:8)

1. Sverdlovskiy sovet narodnogo khozyaystva (for Gantimurov).
2. Glavnyy energetik torfopredpriyatiya "Krasnoye znanie"  
Belorusskogo soveta narodnogo khozyaystva (for Vishnevskiy).
3. Torfopredpriyatiye Radovitskiy Mokh Moskovskogo oblastnogo  
soveta narodnogo khozyaystva (for Rysin). 4. Leningradskiy  
gosudarstvennyy trest torfyanoy promyshlennosti (for Bandin).

GANTIMUROVA N.

COUNTRY : USSR  
CATEGORY :

M-6

ABS. JOUR. : RZBiol., No. 18, 1958, No. 8/119

AUTHOR : Gantimurova, N.  
INST. : Ushinsky Land Reclamation Experiment Station  
TITLE : Sensitivity of Corn to the Degree of Soil Salinization

ORIG. PUB. : Ryb. zhurn.-izvest. 1 copyn. rabot. Ushinsk. copyn. melior. st., 1957, No 2, (8-69)

ABSTRACT : At the station, analyses were made of soil samples from different parts of a field planted with corn, the samples being collected from those parts where a difference in the condition of the plants was apparent. The analyses showed that yields of green crop of corn depend on pH of the soil and total alkalinity of the soil extract: highest yield was obtained in a soil of pH 6.86, of low electric conductivity and alkalinity, but with a large content of sulfates; the lowest -- in a soil with clear indication of salination, where the pH was 3.68, the aqueous extract showed high electric conductivity, was low in sulfates and had a high total alkalinity.--A.A. Orshibrya

CARD://

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|---|------------|
| <p>CA</p> <p>3</p> <p>The Raman effect of oxonium compounds. A. R. Gantmacher, M. V. Vol'kenshtein and Ya. K. Sytkin. <i>Acta Physicochimica U. R. S. S. 12, 780 02(1958)</i> (in English); cf. C. A. 33, 7084; 34, 4001. — From Engl. data on the Raman spectra for the system <math>(CH_3)_2O + n HCl</math> with <math>n = 1, 2, 3</math> at temps. from <math>-80</math> to <math>+20^\circ C</math>, V. and S. find that interaction causes a lowering of the valency frequency of the C-O-C system, an increase of that of <math>CH_3</math>, and of the deformation frequency of C-O-C. For 1:1 mixts. the displacement of the <math>CH_3</math> and C-O-C frequencies is const. throughout the temp. range studied. With increasing amts. of HCl, a new line <math>\Delta\nu = 500 cm^{-1}</math> and a diffuse band at <math>2400 cm^{-1}</math> due to HCl deformed 14% relative to liquid HCl, appear simultaneously. The 500 band is attributed to the oxonium resonance complex <math>CH_3-O^+ \cdots H-Cl^- \cdots HCl</math> and the 500 line to a hindered HCl rotation. The evidence indicates trivalent rather than quadrivalent oxygen; the latter is also unlikely from thermodynamical considerations. F. H. R.</p> <p>Phys. Chem. Inst. in Karpov, Moscow</p> |            |
| <p>ASB-SLA METALLURGICAL LITERATURE CLASSIFICATION</p>  | <p>6-2</p> |

| 1ST AND 2ND ORDER   |  |  |  |  |  |  |  |  |  | 3RD AND 4TH ORDER |  |  |  |  |  |  |  |  |  | 5TH AND 6TH ORDER |  |  |  |  |  |  |  |  |  | 7TH AND 8TH ORDER |  |  |  |  |  |  |  |  |  | 9TH AND 10TH ORDER |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| COMMON ELEMENTS   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| PROCESSING AND PROPERTY INDEX   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <p><i>BC</i></p> <p><i>Raman effect of carbonyl compounds. A. Gantmakher, M. Volkovskii, and J. Sirkin (Acta Physicochim. U.R.S.S., 1941 14, 187--194) -- Raman spectra of mixtures of Me<sub>2</sub>O with H<sub>2</sub>O in the mol. ratios 1:1, 1:2, and 1:3 were studied at 20°, -20°, -40°, and -60°. In the 1:1 mixture there is a shift in the Me<sub>2</sub>O frequencies, and the frequency due to H<sub>2</sub>O is absent. In the 1:2 and 1:3 mixtures there is a still greater shift in the Me<sub>2</sub>O frequencies, whilst new frequencies appear at 600 cm.<sup>-1</sup> and 800 cm.<sup>-1</sup>, the latter being the centre of a broad diffuse band. The broad band is attributed to strongly deformed H<sub>2</sub>O, whilst the frequency 800 cm.<sup>-1</sup> is interpreted in the same way as the corresponding internal frequency of liquid H<sub>2</sub>O. The data of Bragg and Lauppe (J. A., 1937, 1, 599) are analyzed and their interpretation criticized. Raman spectra of solutions of ethers and alcohols in excess of H<sub>2</sub> liquids are consistent with the formation of H<sub>2</sub> bonds and afford no satisfactory evidence of a structure with (H<sub>2</sub>O) n.</i></p> <p><i>Karpov Phys. Chem. Inst., Moscow</i></p> <p>ASB-51A METALLURGICAL LITERATURE CLASSIFICATION</p> |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <table border="1"> <tr> <th colspan="10">1ST ORDER</th> <th colspan="10">2ND ORDER</th> <th colspan="10">3RD ORDER</th> <th colspan="10">4TH ORDER</th> <th colspan="10">5TH ORDER</th> <th colspan="10">6TH ORDER</th> <th colspan="10">7TH ORDER</th> <th colspan="10">8TH ORDER</th> <th colspan="10">9TH ORDER</th> <th colspan="10">10TH ORDER</th> </tr> <tr> <td colspan="50"> <p>1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000</p> </td> </tr> </table>   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  | 1ST ORDER |  |  |  |  |  |  |  |  |  | 2ND ORDER |  |  |  |  |  |  |  |  |  | 3RD ORDER |  |  |  |  |  |  |  |  |  | 4TH ORDER |  |  |  |  |  |  |  |  |  | 5TH ORDER  |  |  |  |  |  |  |  |  |  | 6TH ORDER |  |  |  |  |  |  |  |  |  | 7TH ORDER |  |  |  |  |  |  |  |  |  | 8TH ORDER |  |  |  |  |  |  |  |  |  | 9TH ORDER |  |  |  |  |  |  |  |  |  | 10TH ORDER |  |  |  |  |  |  |  |  |  | <p>1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000</p> |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| 1ST ORDER   |  |  |  |  |  |  |  |  |  | 2ND ORDER         |  |  |  |  |  |  |  |  |  | 3RD ORDER         |  |  |  |  |  |  |  |  |  | 4TH ORDER         |  |  |  |  |  |  |  |  |  | 5TH ORDER          |  |  |  |  |  |  |  |  |  | 6TH ORDER |  |  |  |  |  |  |  |  |  | 7TH ORDER |  |  |  |  |  |  |  |  |  | 8TH ORDER |  |  |  |  |  |  |  |  |  | 9TH ORDER |  |  |  |  |  |  |  |  |  | 10TH ORDER |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| <p>1000 1100 1200 1300 1400 1500 1600 1700 1800 1900 2000 2100 2200 2300 2400 2500 2600 2700 2800 2900 3000 3100 3200 3300 3400 3500 3600 3700 3800 3900 4000 4100 4200 4300 4400 4500 4600 4700 4800 4900 5000 5100 5200 5300 5400 5500 5600 5700 5800 5900 6000 6100 6200 6300 6400 6500 6600 6700 6800 6900 7000 7100 7200 7300 7400 7500 7600 7700 7800 7900 8000 8100 8200 8300 8400 8500 8600 8700 8800 8900 9000 9100 9200 9300 9400 9500 9600 9700 9800 9900 10000</p>  |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                   |  |  |  |  |  |  |  |  |  |                    |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |           |  |  |  |  |  |  |  |  |  |            |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |

Change in Raman spectra of chloroprene and isoprene in the polymerization process. A. Gantmanher and S. Medvedev *U.S.S.R. Physicochem. U.R.S.S.*, 1942, 10, 1-11).—Raman data are given for chloroprene (I), a 30% solution of polymerised (II) in the monomer, a solution of the polymeride in  $C_6H_6$  or  $CCl_4$ , and the pure polymeride; corresponding data are also given for isoprene (III). In each case polymerisation gives rise to a non-conjugate double-bond line ( $1660\text{ cm}^{-1}$  in (I) and  $1665\text{ cm}^{-1}$  in (II)) not given by the monomer; a conjugate double-bond line ( $1630, 1640\text{ cm}^{-1}$ ) decreases in intensity as polymerisation proceeds, but remains much stronger than the  $1660-1665\text{ cm}^{-1}$  line when >50% of polymeride is present. The  $1020\text{ cm}^{-1}$  C-H line given by (I) is displaced to  $1005\text{ cm}^{-1}$  on polymerisation, and its intensity increases considerably. Changes in C-C and C-Cl lines are discussed. Polymerisation does not increase the background intensity of the spectrograms. A. J. E. W.

Karyov Inst. Phys. Chem., Moscow

GANTMAKHER, A. R.; MEDVEDEV, S. S.

Physico-Chemical Institute imeni L. Ya. Karpov, Moscow (-1941-)

"The Change of the Raman Spectrum of Chloroprene and Isoprene in the Polymerization Process." Zhur. Fiz. Khim. Vol 17, No 1, 1943.

BR-52059019

G. M. Kosolapoff A.R.

Catalytic polymerization of unsaturated compounds.  
Catalytic polymerization of styrene. A. R. Gantmakher  
and S. S. Medvedev. *Izvestiya Akad. Nauk S.S.S.R. Ser. Khim.*  
*Soyedinenii, Doklady 6-oi Konf. Vysokomolekul. Soedineni-*  
*yam, Akad. Nauk S.S.S.R. 1949, 50-58; cf. C.A. 43,*  
*7205f; 47, 8480c.*—Dilatometric and viscometric study of  
polymerization of PhCl:Cl<sub>2</sub> was made at 0°, 10°, 20°, and  
30° in BtCl soln. with SnCl<sub>4</sub> as catalyst. The rate is well  
defined by the equation:  $-d[I]/dt = K_1 K_2 [B_0] [A] /$   
 $K_1 + K_2 [A]$ , where  $B_0$  is initial catalyst concn.,  $K_1$  is the  
rate const. of initiation of chains (about  $2.002 \times 10^{-3}$  mole/l.  
min.),  $K_2$  is chain growth rate const. ( $1.0 \times 10^{-1}$  mole/l.  
min.),  $K_3$  is chain rupture rate const. ( $1.034 \times 10^{-3}$  min.<sup>-1</sup>).  
This is derived on the assumption that catalyst units remain  
bound to the growing chain. In this process the recombina-  
tion mechanism of chain rupture is absent. Characteristic  
viscosity is proportional to the square root of initial concn.  
of monomer and changes from 2.75 at 0° to 1.8 at 30°. HCl  
and H<sub>2</sub>O accelerate the reaction; the former also accelerates  
chain rupture. At high concn. of monomer there was ob-  
served an acceleration of the polymerization rate as the pro-  
cess proceeded; this is attributed to branched chain me-  
chanism and is absent in peroxide-catalyzed reactions.

G. M. Kosolapoff

①



| 1ST AND 2ND COPIES   |  | PROCEDURES AND PROPERTIES INDEX   |  | 140 1400 1TH COPIES |  |
|--|--|---|--|---------------------|--|
| <div style="font-size: 2em; font-weight: bold; letter-spacing: 0.5em;">C A</div> |  | <p style="text-align: right; margin-right: 20px;">2</p> <p>Catalytic polymerization of unsaturated compounds. A. B. Gantmakher and N. N. Molodtsov. <i>Zhur. Fiz. Khim.</i> 23, 810-20 (1949). Polymerization of styrene (I) at 20° in the presence of SnCl<sub>4</sub> in EtCl was detd. in a dilatometer. If <math>A</math> was the variable concn. of monomer I and <math>B</math> the const. concn. of SnCl<sub>4</sub>, <math>-dA/dt = k_1 B A^{1/2} / (k_2 + k_1 A)</math>, when the starting <math>A</math> (<math>A_0</math>) varied between 0.4 and 1.4 mol./l. and <math>B</math> was 0.00-0.06 mol./l. The const. <math>k_1</math> of the formation of the first active center was 0.002 l./mol. min. and <math>k_2</math> of the rate of chain breaking was 0.001 min.<sup>-1</sup>. <math>k</math> is the const. of formation of the complex of I and SnCl<sub>4</sub>. The equation shows that addn. of this complex to another mol. of I is the rate-detg. process. The temp. coeff. of the reaction was 1.37 between 0 and 30°. When <math>A_0</math> was 2.5 M, <math>(-dA/dt)</math> increased "auto-catalytically" showing branching of reaction chains; this effect was absent in the presence of SnCl<sub>4</sub> + HCl or of (BuO)<sub>2</sub>. From the viscosity of polymer solns. in CCl<sub>4</sub> at 20°, <math>[\eta] = \lim (\eta_{sp}/c)</math> was calcd. It was independent of <math>B</math>, almost independent of the degree of polymerization, and was 2.1 <math>\sqrt{A_0}</math> for polymers produced at 20°; after polymerization at 0° <math>[\eta]</math> was 1.5 times that after polymerization at 30°. As <math>[\eta]</math> was independent of <math>B</math>, chains are not broken by recombination. HCl added to SnCl<sub>4</sub> accelerated the polymerization more the more HCl was added until the mol. ratio 1:1 was reached. The <math>[\eta]</math> of the polymer obtained in the presence of SnCl<sub>4</sub> + HCl was about 1/2 that in the presence of SnCl<sub>4</sub>. H<sub>2</sub>O acts similarly to HCl. Presumably H ion is the active component of HCl.</p> <p style="text-align: right;">J. J. Bikerman</p> |  |                     |  |
| ASB-11A METALLURGICAL LITERATURE CLASSIFICATION                                  |  | E-2   |  |                     |  |
| 88000 171613194  |  | 88000 171613194   |  |                     |  |
| 16NOV 54   |  | 16NOV 54  |  |                     |  |
| 100000 171613194   |  | 100000 171613194  |  |                     |  |
| 100000 171613194   |  | 100000 171613194  |  |                     |  |

GANTMAKHER, A. R.

FA 196T17

USSR/Chemistry - Plastics

Nov 51

"Catalytic Polymerization of Unsaturated Compounds.  
II. Effect of the Dielectric Constant of the Medium on the Catalytic Polymerization of Styrene,"  
A. R. Gantmakher, S. S. Medvedev, Phys. Chem Inst  
Imeni L. Ya. Karpov, Moscow

"Zhur Fiz Khim" Vol XXV, No 11, pp 1328-1334

Ionic character of processes of styrene polymerization with  $\text{SnCl}_4$  was shown by investigation of processes in solvents with different dielec consts (i.e., higher dielec const increases reaction rate HCl admixts have different effects in different

196T17

USSR/Chemistry - Plastics (Contd)

Nov 51

solvents, accelerating reaction in ethylchloride, dichloroethane, and o-nitrotoluene, lowering reaction rate in cyclohexane, and lowering mol wt when solvent has different dielec const than HCl) Found that reaction rate is proportional to square of concn of styrene in ethyl chloride with uniform dielec const. Proposes eq for dependence.

196T17

GANTMAKHER, A. R.

USSR/Chemistry - Elastomers; Plastics Feb 52

"Catalytic Polymerization of Unsaturated Hydrocarbons. III. Catalytic Polymerization of Isoprene," A. R. Gantmakher, B. S. Medvedev, Phys Chem Inst Imeni L. Ya. Karpov, Moscow

"Zhur Fiz Khim" Vol XXVI, No 2, pp 173-179

Results on the catalytic polymerization of isoprene with  $\text{SnCl}_4$  in an  $\text{EtCl}$  soln agree with those obtained on styrene. The rate of reaction increases with time, because there is an autocatalytic increase of the number of active centers in the branched chain reaction. Branching of reaction chains occurs under

211745

participation of  $\text{SnCl}_4$ . In agreement with the proposed mechanism,  $\text{EtCl}$  inhibits acceleration of the reaction and lowers mol wt of products. At  $-80^\circ$ , the branched chain polymerization of isoprene does not occur even with a 100% monomer. Interaction of growing chains with double bonds of polymer mols proceeds under reduction of deg of unsat. Reduction of the concn of monomer results in decrease of deg of unsat and increase of the temp of gelation.

211745

GANTMAKHER, A. P.

USSR/Chemistry - Elastomers, Polymerization 21 Oct 52

"Initiation Mechanism in the Catalytic Polymerization of Unsaturated Compounds," A. P. Gantmakher, S. S. Medvedev, Corr Mem, Acad Sci USSR, T. E. Lipatova

"Dok Ak Nauk SSSR" Vol 86, No 6, pp 1109-1111

A conclusion drawn by P. H. Plesch, M. Polanyi, H. A. Skinner, A. S. Evans, and G. W. Meadows is found to be incorrect. These authors claim that in the catalytic polymerization of isobutene in the liquid state or in hexane solus with  $TiCl_4$  and  $BF_3$  catalysts at

234T25

low temps, the addn of  $H_2O$ ,  $CCl_3COOH$ , etc., is necessary in order that the reaction may proceed. This is disputed in the present work: It is shown that by raising either the temp or the dielec const of the solvent, catalytic polymerization of unsatd compds can be made to proceed in the presence of aprotonic acids ( $SnCl_4$ ,  $AlCl_3$ ,  $BF_3$ ,  $TiCl_4$ , and others) without the addn of  $H_2O$ ,  $CCl_3COOH$  or other substances acting on the catalyst under formation of protonic acids.

234T25

*GANTMAKHOR, A.R.*

USSR/ Catalytic polymerization

Card 1/2 Pub. - 21/52

Authors : Gantmakhor, A. R., and Medvedev, S. S. Act. Memb. of Acad. of Sc. USSR

Title : ~~Some peculiarities of the kinetics of combined catalytic polymerization~~  
Some peculiarities of the kinetics of combined catalytic polymerization

Periodical : Dok. AN SSSR, 100/2, 275-278, Jan 11, 1955

Abstract : Investigation was made to determine the kinetics of combined and separate catalytic polymerization of isoprene-butadiene and styrene-butadiene systems. The polymerization was carried out in EtCl with  $\text{SnCl}_4$  as catalyst at  $0^\circ$  by the dilatometric method. Results indicate that the butadiene polymerization does not take place at temperatures of from  $0$  to  $20^\circ$ ; the polymerization with this less active catalyst requires much higher temperatures. Isoprene with  $\text{SnCl}_4$  was observed to polymerize at temperatures ranging from  $0$  to  $-80^\circ$ .

Institution : The L. Y. Karpov Scientific Research Phys-Chem. Institute

Submitted : July 3, 1954

Periodical : Dok. AN SSSR, 100/2, 275-278, Jan 11, 1955

Card 2/2 Pub. 22 - 21/52

Abstract : Initial and maximum rate of polymerization were increasing after adding a relatively large amount of butadiene to the isoprene. An entirely different effect was observed during the addition of butadiene to styrene. Eight references: 2 English; 2 USA; 1 German and 3 USSR (1923-1951). Table; graph.

*CANTMAKHER, A.R.*

USSR/Chemistry - Catalytic polymerization

Card 1/1 Pub. 22 - 22/49

Authors : Lipatova, T. E.; Cantmakher, A. R.; and Medvedev, S. S. Memb. Corresp.  
of Acad. of Sc., USSR

Title : Catalytic copolymerization of unsaturated compounds

Periodical : Dok. AN SSSR 100/5. 925-928, Feb 11, 1955

Abstract : The kinetics of catalytic copolymerization of isoprene-styrene, isoprene-alpha-methylstyrene systems over  $\text{SnCl}_4$  catalysts was investigated to determine the copolymerization constants for these systems. The dependence of the copolymerization rate upon the composition of the basic mixture and the molecular weights of the homologous copolymers were determined. The ion mechanism of catalytic polymerization in the presence of an  $\text{SnCl}_4$  catalyst is explained. Eight references: 6 USA and 2 USSR (1944-1955). Table; graphs.

Institution : .....

Submitted : July 3, 1954

GANTMAKHER, A. R.

7 FEB 20 2/1964

Meals

The simultaneous carbonium polymerization of vinyl-substituted compounds. Simultaneous polymerization of isoprene with styrene. T. E. Lindstrom, A. R. Gantmakher, and S. S. Medvedev (L. Ya. Kurnov Inst. Chem., Moscow). *Zhur. Fiz. Khim.* 30, 1753-9 (1956).—The rate of polymerization was studied in relation to the compn. of the starting mixt. The mol. wt. and the compn. of the polymers were detd. The data show that 3 components participate in the polymerization: isoprene, styrene, and the copolymer. The data on the compn. of the copolymer show that for a high concn. of styrene in the starting mixt., the isoprene is the more reactive monomer and the final copolymer is enriched in its isoprene content. L. Bortas-Louch.

FM 2/19/64



GANTMAKHER, A.R.

Mechanism of catalytic polymerization of unsaturated compounds  
 A. R. Gantmakher and S. S. Medvedev (*Dokl. Akad. Nauk SSSR*,  
 1956, 109, 1031-1034). Polymerization of vinyl alkyl ethers in  
 presence of  $I_2$  consists of the reactions:  $2M_1 \rightarrow M_1I + I_2$  +  $M$   
 (initiation of chain);  $M_1I + M \rightarrow M_2I$  (growth of chain);  $M_2I \rightarrow$   
 $M_1I + M$  and  $M_2I + I_2 \rightarrow I_2M_2 + M$  (breaking of reaction  
 chains), for which the velocity const. are  $k_1, k_2, k_3$  and  $k_4$ , respectively.  
 If  $k_2 \ll k_4$ , the velocity of polymerization is given by:  
 $k_1 k_2 [I_2] [M] / k_4$ , where  $M$  represents monomer. At high  $[M]$ ,  $k_2 \ll k_4$   
 and  $v = k_1 k_2 [I_2] [M] / (k_4 + k_2 [M])$ . R. Tabacco.

PM n-T

CAITMARTER, A. R. and MEDVEDEV, S. S.

"Kinetics of copolymerization," a paper presented at the 9th Congress  
on the Chemistry and Physics of High Polymers, 28 Jan-2 Feb 57, Moscow,  
Karpov, Inst.

B-3,084,395

SOV/76-32-9-13/46

AUTHORS: Lipatova, T. E., Gantmakher, A. R.,  
Medvedev, S. S.

TITLE: The Catalytic Copolymerization of Unsaturated Compounds  
(Sovmestnaya kataliticheskaya polimerizatsiya nenasyszhennykh  
soyedineniy) II. The Copolymerization of Isoprene and  $\alpha$ -  
Methyl Styrene (II. Sovmestnaya polimerizatsiya izoprena s  
 $\alpha$ -metilstirolom)

PERIODICAL: Zhurnal fizicheskoy khimii, 1958, Vol 32, Nr 9,  
pp 2029 - 2034 (USSR)

ABSTRACT: These compounds were polymerized in an ethyl chloride  
solution at 0°C using tin (IV) chloride as a catalyst. The  
composition of the copolymers formed was determined from  
the volume decrease during the polymerization and by means  
of infra-red spectroscopy. The spectra are reproduced in  
figures 1, 2, and 3. The molecular weights were determined  
by the osmotic method (Table 2). Diagrams show the course  
of the polymerization of  $\alpha$ -methyl styrene alone (Fig 5) and  
of the copolymerization of isoprene and  $\alpha$ -methyl styrene.  
The work shows that three components, isoprene,  $\alpha$ -methyl  
styrene, and a product of copolymerization with inner

Card 1/2

The Catalytic Copolymerization of Unsaturated Compounds. SOV/76-32-9-13/46  
II. The Copolymerization of Isoprene and  $\alpha$ -Methyl Styrene

double bonds take part in the polymerization reactions. Steric factors are important in the reaction between the tertiary carbonium ion and monomers.  $\alpha$ -methyl styrene is considerably more reactive than isoprene. The initial reaction rate in the polymerization of the  $\alpha$ -methyl styrene is decreased by the introduction of isoprene into the system. This is explained by the fact that various complex monomer-catalysts are formed. This formation reduces the concentration of the complex formed by the tin (IV) chloride with  $\alpha$ -methyl styrene, which is the more active of the two monomers in initiating carbonium polymerization. There are 7 figures, 2 tables, and 2 references, 2 of which are Soviet.

ASSOCIATION: Fiziko-khimicheskiy institut im.L.Ya.Karpova, Moskva (Moscow Physical-Chemical Institute imeni L.Ya.Karpov)

SUBMITTED: April 4, 1957  
Card 2/2

**AUTHORS:**

Lyudvig, Ye. B., Gantmakher, A. R.,  
Medvedev, S. S., Corresponding Member, Academy of Sciences,  
USSR

20-119-1-24/52

**TITLE:**

Some Peculiarities of the Carbonium-Polymerization of the  
Styrene- $\alpha$ -Methylstyrene System (Nekotoryye osobennosti  
karboniyevoy polimerizatsii sistemy stirol- $\alpha$ -metilstirol)

**PERIODICAL:**

Doklady Akademii Nauk SSSR, 1958, Vol. 119, Nr 1, pp. 90-93  
(USSR)

**ABSTRACT:**

The present paper is devoted to the investigation of a common cationic polymerization of the above-mentioned substances. In the earlier first investigation by the authors a rapid acceleration of the styrene-polymerization in the presence of small additions of  $\alpha$ -methylstyrene was observed. Now the dependence of the common polymerization on the composition of the initial mixture was investigated, and compositions of corresponding polymers together with the molecular weights determined. The obtained results were compared with the results of the separate polymerization.  $\text{SnCl}_4$  in a solution of ethyl chloride at  $0^\circ\text{C}$  was used as catalyst. The curves (figure 1) obtained for various initial relations of the

Card 1/4

Some Peculiarities of the Carbonium-Polymerization of the  
Styrene- $\alpha$ -Methylstyrene System

20-119-1-24/52

monomers show that in the concentration range from 0,7 to 1,7 Mol for  $\alpha$ -methylstyrene (at a total concentration of the monomers of 2,5 Mol/liter) the polymerization under review takes place without an induction period with a gradually decreasing velocity. The composition of the co-polymers with those of the initial mixtures is given in table 1 which shows that the co-polymers are highly enriched with  $\alpha$ -methylstyrene as more active component. The product of the copolymerization-constants in this system is less than 1 (references 1,2). The steric effect manifests itself in a separate polymerization of  $\alpha$ -methylstyrene which is confirmed by the reduced thermal effect of its polymerization (ref. 3). The molecular weight of the polymers are given in table 2. The kinetic curves of the domain of the additions of small quantities of the more active component (figure 2) are the most interesting. The intensive effect of an increase in polymerization velocity in the course of time is characteristic here. It begins at a certain stage of time is characteristic which is characteristic of every given relation of the polymers. The maximum velocity was observed in a relation of 10 Mol styrene: 1 Mol  $\alpha$ -methylstyrene. With increasing

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concentration of the catalyst the acceleration of the polymerization increases and its depth decreases (figure 2). The temperature drop highly reduces the relation of the maximum velocity to the initial velocity and lengthens the induction period. The observed maximum velocities exceed the sum of the velocities of the separate polymerization of the same monomers with the same initial concentrations. From these data follows that the effect of the acceleration is connected with the initiation acts. This is also indicated by a powerful influence of water and HCl upon the acceleration: as is to be seen from table 3 the acceleration effect is highly inhibited by these additions. The possible causes of a small acceleration at high HCl-concentrations are discussed. Further a partial effect of the reduction of the initial velocity takes place on the introduction of small additions of  $\alpha$ -methylstyrene (figure 4). Such a phenomenon is well known in the radical polymerization. With the exhaustion of the quantity of  $\alpha$ -methylstyrene the polymerization velocity shall somewhat increase and approach that of pure styrene. It was proved in this paper that the reactivity of the  $\alpha$ -methylstyrene molecule in proportion to the carbonium ion

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of styrene is considerably higher than that of styrene.  
Small quantities of the first-mentioned more active  
component intensively accelerate the styrene polymerization.  
This effect apparently is of general nature and is connected  
with a great difference of the activity of the monomers.  
There are 4 figures, 2 tables, and 3 references, 1 of which  
is Soviet.

SUBMITTED: October 9, 1957

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ZABOLOTSKAYA, Ye.V.; GANTMAKHER, A.R.; MEDVEDEV, S.S.

Polymerization of styrene with the simultaneous action of a catalyst  
and light. Vysokom. soed. 1 no.3:460-465 Mr '59. (MIRA 12:10)

1. Fiziko-khimicheskiy institut im. L. Ya. Karpova.  
(Polymerization) (Styrene)

SPIRIN, Yu.L.; GANTMAKHER, A.R.; MEDVEDEV, S.S.

Mechanism of polymerization in the presence of alkali metal  
organic compounds. Vysokom.soced. 1 no.8:1258-1265  
Ag '59. (MIRA 13:2)

1. Fiziko-khimicheskii institut im. L.Ya.Karpova.  
(Polymerization) (Alkali metal compounds)

LYUDVIG, Ye.B.; GANTMAKHER, A.R.; MEDVEDEV, S.S.

Characteristics of the mechanism of cationic polymerization.  
Part 1: Copolymerization of the systems  $\alpha$ -methylstyrene - styrene,  
isobutylene - styrene and n-butyl vinyl ether - styrene. Vysokom. soed.  
1 no.9:1333-1341 S '59. (MIRA 13:3)

1. Fiziko-khimicheskiy institut im. L.Ya. Karpova.  
(Styrene) (Ether) (Propene) (Polymerization)

LYUDVIG, Ye. V.; GANTMAKHER, A.R.; MEDVEDEV, S.S.

Characteristics of the mechanism of cationic polymerization. Part 2:  
Mechanism of the fundamental reactions of cationic polymerization.  
Vysokom. soed. 1 no.9:1342-1350 S '59. (MIRA 13:3)

1. Fiziko-khimicheskiy institut im. L. Ya. Karpova.  
(Polymerization) (Styrene) (Propene)

GANTMAKHER, A.R.; SPIRIN, Yu.L.; MEDVEDEV, S.S.

Polymerization and copolymerization of fluorinated styrenes.  
Vysokom.soced. 1 no.10:1526-1530 0 '59. (MIRA 13:3)

1. Fiziko-khimicheskiy institut im.L.Ya.Karpova.  
(Styrene) (Polymerization)

5 (2)

AUTHORS:

Gantmakher, A. R., Medvedev, S. S.,  
Academician, Lyudvig, Ye. B.

30V/20-127-1-26/65

TITLE:

On the Initiation Mechanism of Cationic Polymerization in the  
Presence of Metal Halides (K voprosu o mekhanizme initsii-  
rovaniya kationnoy polimerizatsii v prisutsvii galogenidov  
metallov)

PERIODICAL:

Doklady Akademii nauk SSSR, 1959, Vol 127, Nr 1, pp 100 - 103  
(USSR)

ABSTRACT:

There are two interpretations concerning the initiation mecha-  
nism of carbonium polymerization and of the formation of the  
primary carbonium ion, respectively: (a) Cationic polymeriza-  
tion cannot proceed in the presence of metal halides without  
an addition of various co-catalysts. (b) This polymerization  
is possible under certain conditions without the additions men-  
tioned. The problem of the nature of the co-catalytic additions  
developed considerably with the progress of investigations. In  
references 1-3 it was detected for isobutylene polymerization  
in liquid and in hexane solution that no polymerization takes  
place without proton-containing additions. Therefrom it results  
that always proton-containing acids of the type  $HB \cdot PX_n$  act as

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initiators of the aforesaid polymerization (HB - co-catalyst  $PX_n$ -metal halide). This held in the case of low temperatures and media with a low dielectric constant. The results of isoprene- and styrene polymerization in the presence of  $SnCl_4$  obtained by the authors showed, however, that the polymerization mentioned proceeds as well without additions at higher temperature and a higher dielectric constant (Ref 4). This fact concerning halogen alkyls and dichloro-ethane without additions (Refs 7,8,11) was confirmed by references 5,6. The authors of the two last-mentioned papers were, however, of the opinion that the solvent plays here the role of a co-catalyst (see Scheme). The scheme mentioned shows that the breaking of the chain in chloro-ethyl and dichloro-ethane with  $TiCl_4$  or  $SnCl_4$  as catalysts should not depend on the question as to whether the reaction is carried out in the presence of HCl or without this acid, since the carbonium ion is in either case in the field of one and the same compensating ion. This is in contrast to the authors' results according to which HCl additions reduce the molecular weight of polymers produced by the polymerization in halogen alkylic and other solvents (Ref 7). Only the

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molecules bound to the catalysts are effective. From these and other results (Refs 8-11) the authors drew the conclusion that the cationic polymerization may proceed under the direct effect of aprotic acids in halogen alkylic solvents without the participation of specific co-catalysts. This holds also for water (Refs 5,6). In reference 12 it is, however, not denied that both (a) and (b) polymerization methods are possible. The initiation reaction in the monomer - catalyst system proceeds apparently by way of the formation of a  $\pi$ -complex of the catalyst with the monomer. The initiation reaction is caused by an interaction between this complex and the monomer (Refs 8,13; analogy in reference 14). Thus, complex formation effects (Refs 11, 15) are inhibited by additions of  $H_2O$  and  $HCl$  (Ref 11) which form themselves stable complexes with  $SnCl_4$ .  $\alpha$ -methyl styrene forms complexes with  $SnCl_4$  better than the styrene used in references 1-3. It is rather probable that the co-catalysts form in non-polar solvents not only complexes with the catalyst, but also favor the formation of an ion couple by the solvation of the complex. The additions themselves may play this role as

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well as their complexes with the catalyst. Thus, polymerization without co-catalyst is in several systems one of the special cases of the complex nature of the initiation process. There are 16 references, 9 of which are Soviet.

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~~5(4)~~ 5.3830 (A), 5.3831

66433

SOV/20-128-6-38/63

AUTHORS: Spirin, Yu. L., Gantmakher, A. R.,  
Medvedev, S. S., Academician

TITLE: The Copolymerization of Parachlorostyrene With  $\alpha$ -Methylstyrene  
and Styrene Under the Influence of Alkaline Catalysts

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 128, Nr 6, pp 1232 - 1233  
(USSR)

ABSTRACT: An investigation is made of the reactivity of chlorine-contain-  
ing monomers under the influence of lithium-organic and sodium-  
organic catalysts in different media. The polymerization took  
place in a vacuum, to exclude the effects of air and humidity.  
Previous experiments with monomers containing a relatively mo-  
bile chlorine atom (chlorovinyl, chloroprene) showed that the  
chlorine atom quickly reacts with lithiummethyl and that no poly-  
merization takes place even at low temperatures. The chlorine  
atom of parachlorostyrene is, however, less mobile, and thus it  
is possible to carry out the polymerization. Table 1 gives the  
results of the experiments. Lithiummethyl, sodium triphenylmethyl,  
 $\alpha$ -sodium naphthalene and  $\gamma$ -radiation were used as catalysts; the  
solvents were benzene, ether, triethylamine, and tetrahydrofuran.  
The composition of the copolymers strongly depended on the kind

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The Copolymerization of Parachlorostyrene With  $\alpha$ -Methyl- SOV/20-128-6-38/63  
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of catalyst and medium. In the case of hydrocarbons the radical polymerization is predominant in the polymerization with lithium-ethyl. The same radical polymerization also prevails under the effect of  $\gamma$ -radiation. In the case of triethylamine the polymerization according to the anion mechanism is most frequent, while when lithiumethyl is used in ether radical mechanism and anion mechanism are found side by side. The constants of anionic copolymerization calculated for styrene ( $\alpha = 0.1 \pm 0.1$ ) and parachlorostyrene ( $\beta = 6.5 \pm 0.1$ ) show that the introduction of the chlorine atom into styrene increases the activity of the monomer for anionic polymerization. There are 1 table and 2 references, 1 of which is Soviet.

ASSOCIATION: Nauchno-issledovatel'skiy fiziko-khimicheskiy institut im. L. Ya. Karpova (Scientific Research Institute of Physical Chemistry imeni L. Ya. Karpov)

SUBMITTED: July 6, 1959

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